The Role of “ation” in Policy Instruments in Addressing Environmental Externalities in Agriculture

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Five “ations”

- Classification
- Clarification
- Innovation
- Renovation
- Recommendations

Classification: An Economic Taxonomy of Agricultural Environmental Problems

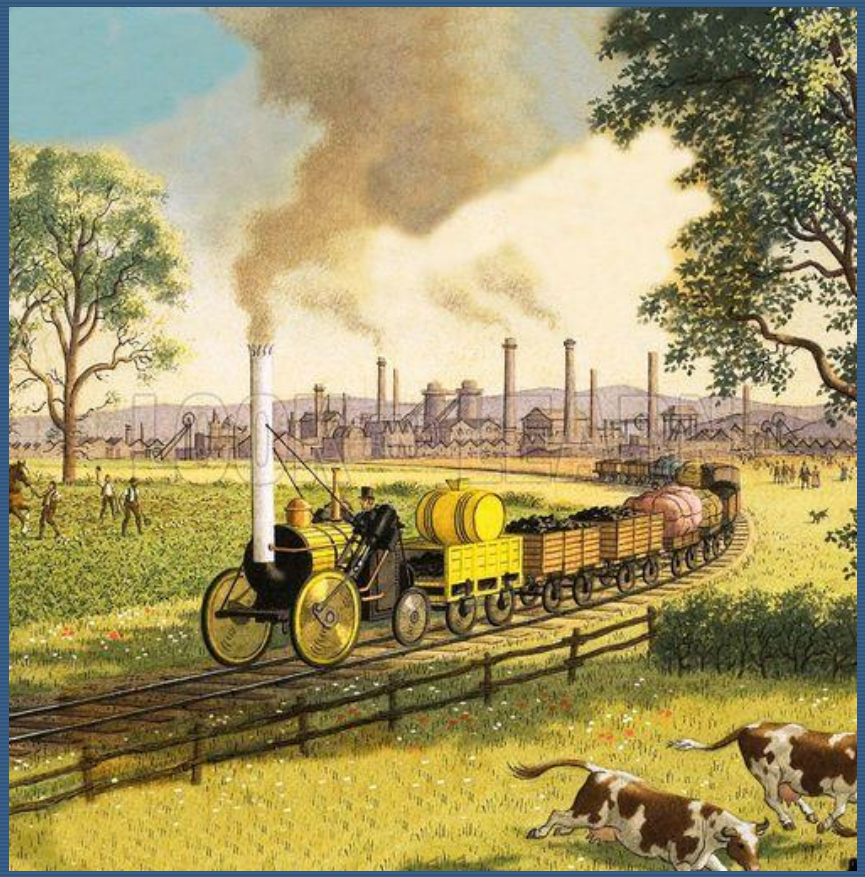
Category	Examples
Excessive Rate of Time Preference	Soil Fertility, Agricultural Land Conversion
Externality / Legalized Nuisance	Displaced Sediment, GHG emissions, Bacterial Contamination of Ground and Surface Water, Excess Nutrients, Noise, Odour, Flies, Drainage (off site effects), Smoke, Dust, Noise, Light
Public Goods	Habitat Loss, Wetland Drainage, Woodlot Clearing
Common Pool	Groundwater Depletion and Surface Water Diversion for irrigation

An Economic Taxonomy of Remedies

Category	Examples
Excessive Rate of Time Preference	Apply the Social Discount Rate
Externality / Legalized Nuisance	Emission Taxes, Tradeable Permits, Regulations, Legal Reform/Liability/Litigation
Public Goods	Finance Through General Tax Revenue, Zero Marginal Cost to Beneficiaries
Common Pool	Extraction Permits (Quotas), Fees, Regulation, Common Law, Voluntary Negotiation, Clarification of Property Rights

Clarification

- Misdiagnosis
- Externality vs legalized nuisance
- Pigou vs Coase
- Agriculture: Elizabeth Brubaker *Greener Pastures*
- The full public goods model



Innovation

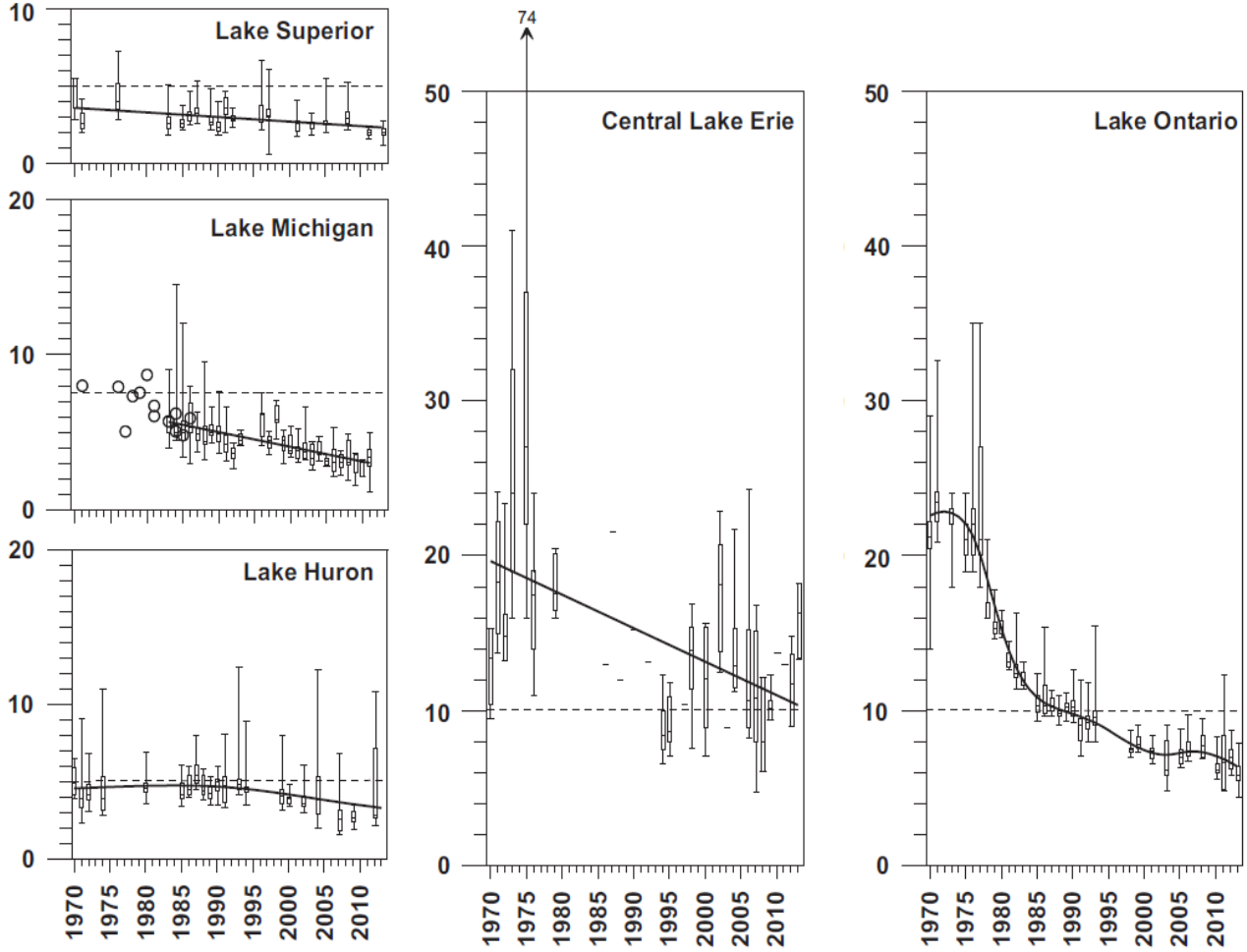
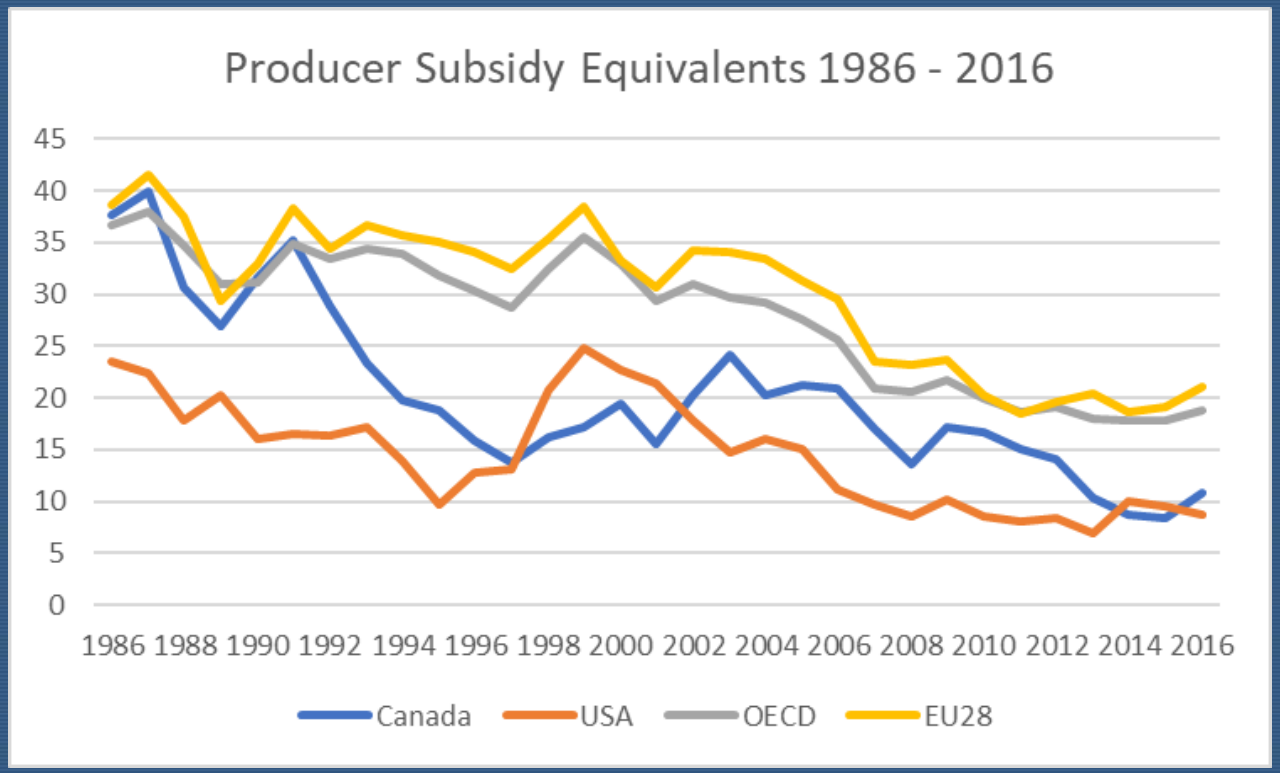


Fig. 1. Trends of open lake, spring (April–May) total phosphorus (TP) concentrations (μg P/L) for the Great Lakes. The existing GLWQA TP target concentrations are shown as the horizontal dashed lines. The additional data points (circles) for Lake Michigan prior to 1983 are taken from Chapra and Dobson (1981), Scavia et al. (1986), and Lesht et al. (1991).

Renovation

- Reform Legalized Nuisance (eliminate)
- Reduce Subsidies – intensive and extensive margin effects

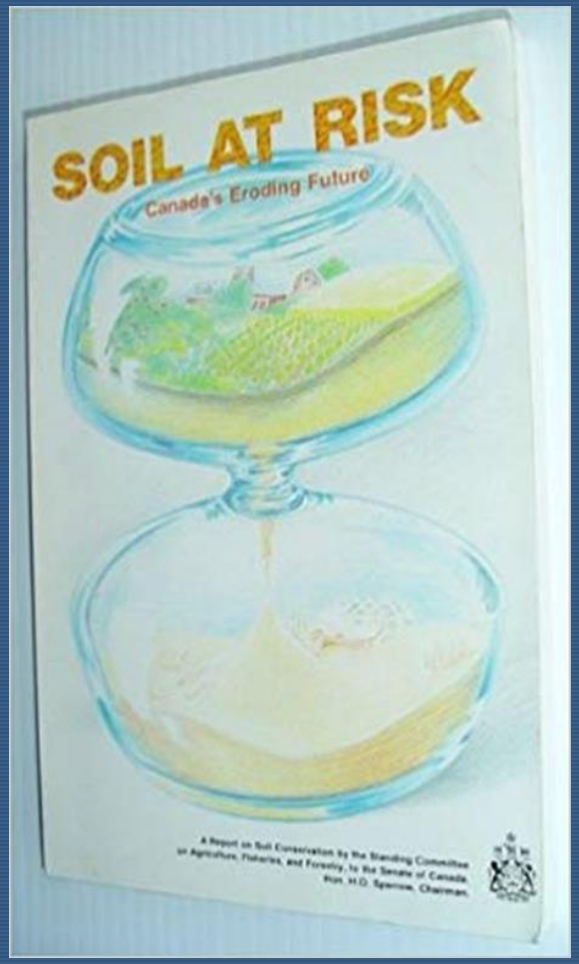


Recommendations

- Commit to the technology and instrumentation of in-stream water quality measurement
- Transparency in municipal waste water bypass
- Eliminate legalized nuisance
- Reduce subsidies
- Clarify ownership of water resources
- Triage/Targeting – prioritize the most important problems – Boxall, Pannell
- Fairness – application of the full public goods model (ALUS?)
- Modesty
- Perspective

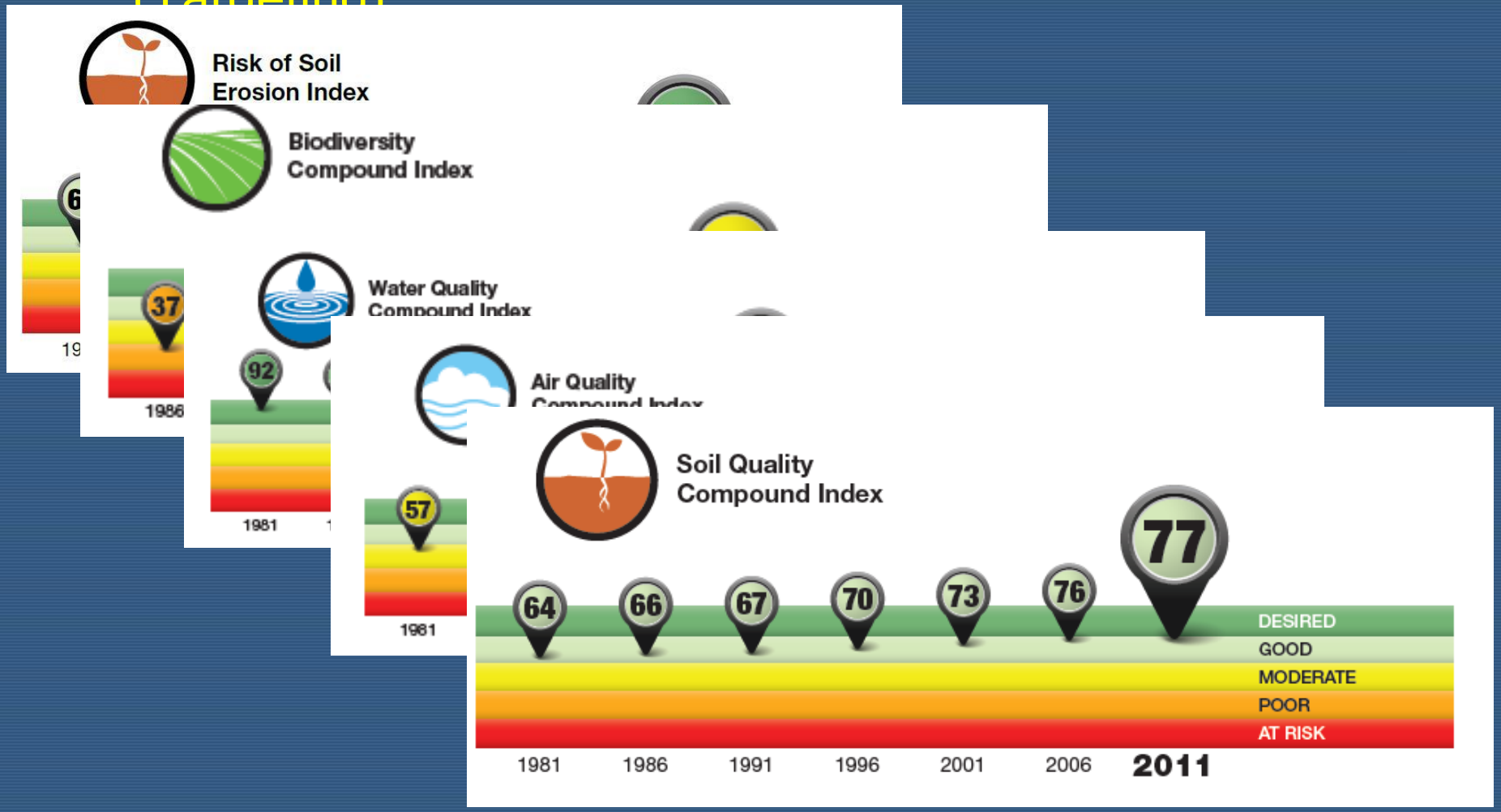
Modesty?

- People like us have been wrong before
- Joined faculty in 1985
- Approached by dept chairman
- First research grant
- Soil erosion was costing farmers $1billion per year (Net Farm Income was ~ $2.8 billion in1985)
- The existence of Canadian agriculture was a risk
- Productivity risk vs off-site damages

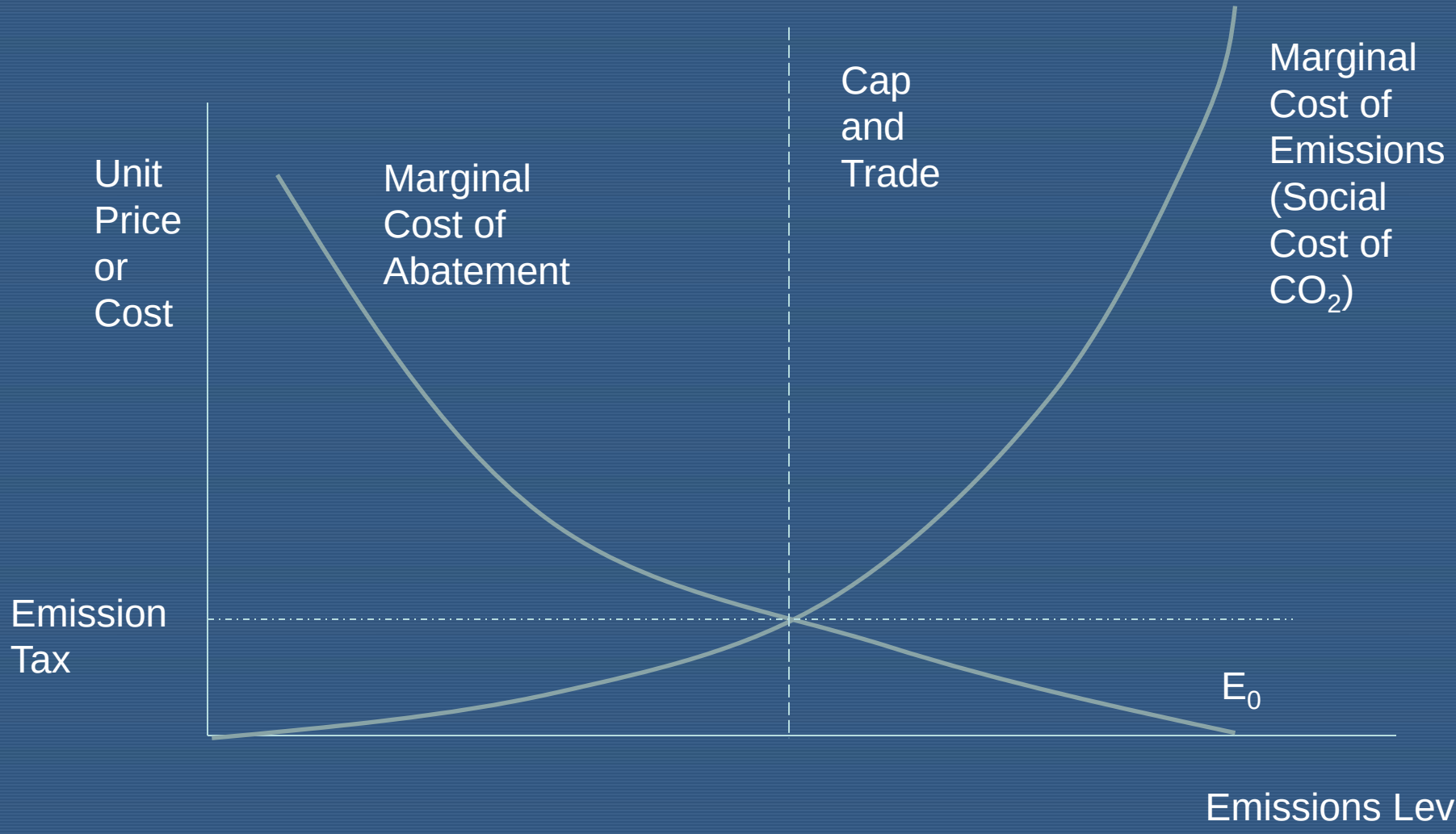


Perspective?

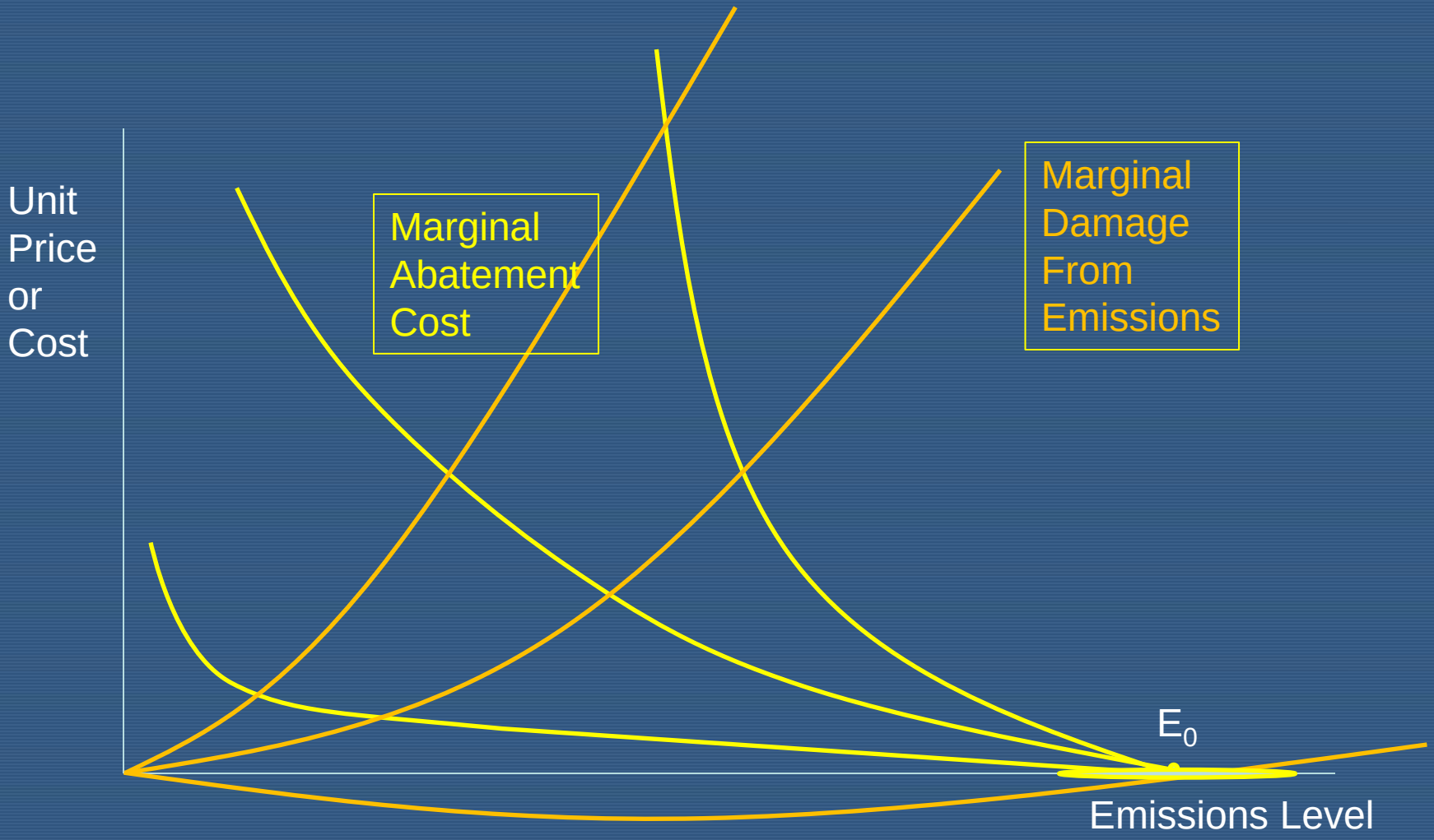
- AAFC: Sustainability Indicators (Targeting)



Theory


Unit Price or Cost
Marginal Cost of Abatement
Cap and Trade
Marginal Cost of Emissions (Social Cost of CO_2)
Emission Tax
E_0
Emissions Level

Implementation: what we observe



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